DRAFT ENVIRONMENTAL ASSESSMENT

Applicant: APM Terminals Virginia, Inc.

Application #: 02-V1913-14

I. Project Description

APM Terminals proposes to construct and operate a privately owned marine container terminal along the Elizabeth River in the City of Portsmouth, Virginia, on what is formerly known as the "Cox Communication Property" and the "Norfolk Southern Railroad Property". Collectively, these are now referred to as the APM Terminals Property. The APM Terminals property is an approximate 576-acre parcel located along the west bank of the Elizabeth River, north of the Western Freeway and south of the existing United States Coast Guard facility. The proposed terminal will include 4,000 feet of berthing facilities along the Elizabeth River, an approximate 300-acre marine container facility adjacent to the berthing facilities, and road and rail infrastructure to access the terminal. Waterborne access to the proposed facility is provided via Craney Island Reach, which currently provides deep-water access for vessel traffic utilizing numerous existing terminal facilities located on the Elizabeth River.

The proposed dredge plan provides a 600 foot wide, 3,962 foot long, one-way approach channel to the berthing area. The approach channel is flared at both the east end adjoining Craney Island Reach and the west end adjoining the 600' foot wide vessel berthing area. The berthing area is approximately 4,500 feet from Craney Island Reach. The proposed dredge depths will provide (-50+2) feet MLLW (-54 feet NGVD) at the toe of slope along the approach channel and within the berthing area. A 200 foot wide strip within the berthing area immediately adjacent to the channelward side of the wharf footprint will be dredged to (-55+2) feet MLLW (-59 feet NGVD) in order to facilitate container loading and unloading during low tide cycles while vessels are berthed. The depths described are minimum maintained depths with an allowable two-foot over-dredge below the minimum depth to account for siltation between maintenance dredge cycles.

The plan area of dredge disturbance is approximately 189 acres of river bottom. Dredge volumes are on the order of 10.3 million cubic yards (CY). Approximately 30% or 3.1 million CY of the dredge material is a sandy silt composition and the remaining 70% or 7.2 million CY is primarily clayey with some organic content based on the subsurface investigation performed. The material will be directly disposed at Craney Island via pipeline. The sandy material will be used to raise the berms and dikes of Craney Island in order to increase its capacity for containment of dredged material.

A new 4,800 foot single lead track with sidings will be built to provide intermodal service to the marine container terminal. The lead track alignment will branch off of the existing Commonwealth Railway and run to a rail yard on the north side of the property where containers will be loaded and unloaded.

The proposed road improvements associated with development of the APM facility include: the construction of a realigned Coast Guard Boulevard with a direct connection to the Cedar Lane interchange; closure of Coast Guard Boulevard between West Norfolk Road and the new Coast Guard Boulevard extension to the Cedar lane interchange; closure of Wyatt Drive from the entrance to the proposed APM Terminal to the existing Coast Guard Boulevard; and the construction of an entrance and exit ramps from Wyatt Drive to the Western Freeway at the West Norfolk Road intersection.

Impacts are proposed to approximately 6.88 acres of forested non-tidal wetlands, 6.95 acres of tidal vegetated wetland, 10.15 acres of tidal mudflat and 2.07 acres of sub-aqueous bottom.

APM Terminals has proposed to mitigate for the impacts on-site through the creation of approximately 13.76 acres of non-tidal-forested wetlands, 14.66 acres of vegetated tidal wetlands for the tidal wetland and mudflat impacts, and a monetary contribution for subtidal bottom impacts to be used to restore benthic habitat in the Elizabeth River.

II. Purpose and Need for the Project

The project purpose is to build a modern, deep-water access, privately owned and operated marine container terminal in an existing commercial port community on the Atlantic Coast of the United States to serve APM Terminals' growing local Hampton Roads and Midwest containerized freight customer markets.

The growth of world trade volumes and the need to increase operational efficiencies has led to the need for greater container vessel carrying capacities. To increase the carrying capacity, vessels have been built longer, wider and with deeper draft requiring deeper waters. Vessels known as Panamax vessels led to larger Post-Panamax vessels, which in turn are expected to be replaced by Suezmax vessels. The larger ships have caused gains in customer service levels and increased productivity for shipping lines. Today's generation and future generations of container handling vessels require channel depths in the range of 45 to 50 feet. Marine container terminals have had to respond accordingly to the increased size of container vessels by modernizing their berthing facilities and enhancing terminal operations in order to service the loading and unloading of the greater number of containers these vessels carry.

Post-Panamax vessels currently have limited access to Atlantic Coast ports due to inadequate channel depths and/or undersized berthing facilities. These vessels that call various ports along the Atlantic Coast today are forced to sail light thereby limiting container carrying capacity, which reduces operating efficiency. The next generation of container vessels referred to as Suezmax class vessels are currently under construction and will be placed in service during the next two to three years. These vessels will be longer, wider, and require fifty-foot deep water. Marine container terminal operators on the Atlantic Coast in Elizabeth, New Jersey; Charleston, South Carolina; and Hampton Roads, Virginia are currently installing longer reach cranes, but only Hampton Roads has existing deep water channel access that is adequate to accommodate the Suezmax vessels.

Containerized cargo growth in the Hampton Roads area is expected to continue during the next two decades. Hampton Roads has been able to attract larger shares of the East Coast market due to its deep protected harbor, its excellent rail connections to the Midwest, and its good labor and management relations.

The Virginia Port Authority predicts the existing marine container facilities in Hampton Roads will run out of capacity by 2008 under their current mode of operations. The current APM Terminal facility in Portsmouth, Virginia is operating at capacity today with no ability to expand. The acreage of this terminal facility will also be reduced starting in 2005 due to a non-renewable lease. Additional marine terminal capacity is required to enable APM Terminals to continue to service their Hampton Roads and Midwest customers.

As terminals reach capacity limits, handling costs increase and service levels decrease. Therefore, additional terminal capacity is also needed to maintain current service levels and competitive cost levels for the importing and exporting community.

III. Alternatives Considered

The applicant performed an alternative analysis that resulted in the production of a report entitled, "Marine Container Terminal Permit Support Document". The Corps has independently evaluated this analysis and agrees with its conclusions. The report is hereby incorporated by reference into this EA.

A. Offsite Alternatives

Starting in 2000, APM Terminals began identifying alternative sites with potential characteristics to meet the project purpose. Four major East Coast port facilities were examined during this analysis to determine their suitability as potential sites. These sites included: 1) New York/New Jersey, 2) Baltimore, 3) Charleston, and 4) Hampton Roads. The marine container terminals evaluated should have the most favorable combination of the following screening criteria in order to satisfy the project purpose: 1) 50 foot deep MLLW water channel access without air draft restrictions to accommodate post-Panamax and future Suezmax class vessels; 2) 4,000 foot long berthing facilities capable of loading and unloading multiple post-Panamax and future Suezmax class vessels; 3) 300 acre marine container terminal immediately adjacent to berthing facilities in order to provide

sufficient area for efficient container storage and handling operations; 4) On-terminal intermodal yard immediately adjacent to marine container terminal capable of storing and loading/unloading three, twenty-one, double stack car trains; 5) Unrestricted rail access to Midwest rail hubs; and immediate highway access to customer markets.

In the final analysis, only the APM Terminals property was deemed suitable to meet the expressed purpose and need for the project. Since sites 1 through 3 failed to meet the selection criteria, a more thorough analysis was conducted within the Hampton Roads area.

The four primary sites considered within the Hampton Roads included: 1) Existing APM Terminal facility, 2) Virginia International Terminal's (VIT) existing facilities, 3) Virginia Port Authority's (VPA) planned Craney Island expansion area, and 4) APM Terminals Property.

The existing APM Terminal, the VIT and VPA's planned Craney Island Expansion area all failed to meet the applicant's screening criteria. A graphical summary of the offsite analysis is provided in Table 3-1, Offsite Alternative Development Matrix. The analysis then concentrated on onsite alternatives.

B. Onsite Alternatives

APM Terminals presented a series of alternatives for onsite development at the selected site. Each alternative was analyzed based on satisfaction of the project purpose with regard to the required 4,000 linear feet of berthing facilities and 300 acres of marine container terminal area and within the context of the probable environmental affect based on consideration of comparative combined open water and wetland impacts. The alternative site plans are identified as "A" through "H". The goal of the site layout was to design the terminal in a way that would meet the stated project purpose and need but also minimize environmental impacts to the maximum extent practicable.

Site Plan Alternative "A": This alternative seeks to maximize the extent of terminal area by founding a 4,700 foot long berthing facility along the Bulkhead Line established by the U.S. Army Corp of Engineers in 1951, and developing approximately 412 acres of terminal area based on the area between the Bulkhead Line and Coast Guard Boulevard.

This plan exceeds both berthing and acreage requirements, but was not given further consideration since it resulted in combined impacts to approximately 122 acres of open waters and wetland areas.

Site Plan Alternative "B": This alternative consists of the identical 4,700 foot long berthing facilities similar to Site Plan Alternative "A". It seeks to further minimize the extent of wetland impact along the western boundary of the marine container terminal by reducing the terminal area to approximately 375 acres.

This plan exceeds both berthing and acreage requirements, but was not given further consideration since it resulted in combined impacts to approximately 95 acres of open waters and wetland areas.

Site Plan Alternative "C": This alternative consists of the identical 4,700 foot long berthing facilities. It seeks to further minimize the extent of wetland impact along the northern boundary of the marine container terminal. The orientation of the on-terminal rail yard is rotated slightly to best fit within the upland area located between the northern property line and the wetland area in the center of the property.

This plan exceeds both berthing and acreage requirements, but was not given further consideration since it resulted in combined impacts to approximately 93 acres of open waters and wetland areas.

Site Plan Alternative "D": This alternative proposes 4,000 foot long berthing facilities along the established Bulkhead Line in order to further minimize the extent of open water impact along the Elizabeth River. The berthing facilities consist of 3,750 feet of wharf structure with an additional mooring dolphin located 125 feet from both the north and south ends of the wharf structure. This

satisfies the berthing requirements without the need for an additional 250 feet of wharf structure shadowing open waters and one hundred (100) of its associated piles.

This plan meets the berthing requirements and exceeds the acreage requirements, but was not given further consideration since it resulted in combined impacts to approximately 74 acres of open waters and wetland areas.

Site Plan Alternative "E": This alternative consists of the identical 4,000 foot long berthing facilities as described in Alternative D. It seeks to further minimize the extent of wetland impact along the western boundary of the marine container terminal by reducing the terminal area to approximately 329 acres.

This plan meets the berthing requirements and exceeds the acreage requirements, but was not given further consideration since it resulted in combined impacts to approximately 65 acres of open waters and wetland areas.

Site Plan Alternative "F": This alternative proposes the 4,000 foot long berthing facilities similar to Site Plan Alternative "E". It seeks to minimize the extent of open water impact along the Elizabeth River by shifting the facility to the west thereby increasing the wetland impact along the western boundary of the marine container terminal.

This plan meets the berthing requirements and exceeds the acreage requirements, but was not given further consideration since it resulted in combined impacts to approximately 50 acres of open water and wetland areas.

This alternative requires non-practical construction costs for the additional width of the wharf structure and bridge piers that no longer make this project viable to build. This alternative also penalizes the efficiency of marine container terminal operations in perpetuity and increases the ultimate cost to the Hampton Roads consumer market. It would require additional vessel tractors and drivers to be assigned to each shore crane gang due to the incremental time each vessel tractor driver wastes by shuttling containers back and forth over the bridges between the shore cranes located on the wharf and the container storage yard.

Alternative Site Plan "G": This alternative proposes the same 4,000 foot long berthing facilities. The wharf footprint is moved to the existing shoreline with the face of wharf remaining parallel to the established Bulkhead Line. The terminal area is reduced to approximately 297 acres.

This plan meets the berthing requirements and is within 1 percent (1%) of the acreage requirements, but was not given further consideration since it resulted in combined impacts to approximately 35 acres of open waters and wetland areas.

Alternative Site Plan "H": This alternative proposes a 4,000-foot long berthing facility. It seeks to further minimize the extent of open water impact along the Elizabeth River by rotating the wharf slightly and aligning the wharf footprint towards the existing shoreline with the wharf sited along mean low water. This effort to further minimize channelward encroachment requires rotating the entire layout of the container yard and increasing the wetland impact along the western boundary of the marine container terminal. The terminal area remains approximately 298 acres.

This plan meets the berthing requirements and is within one percent (1%) of the acreage requirements. This plan results in combined fill impacts to approximately 32 acres of open water and wetland areas, and was the applicant's preferred alternative.

Modified Alternative H: The Corps requested that alternative G, that avoids 5.5 acres of forested wetlands impacted by alternative H be re-evaluated. The applicant was able to revise alternative H, the preferred alternative, to avoid another 5.2 acres of forested wetland and 0.44 acres of tidal emergent wetlands while not increasing impacts to submerged state-owned lands.

This least damaging practicable alternative proposes a 4,000-foot long berthing facility as represented in modified Alternative "H", Figure 5-9. It minimizes the extent of open water impact along the Elizabeth River by siting along mean low water. This plan meets the berthing requirements and is within three percent (3%) of the acreage requirements. This plan results in combined fill impacts to approximately 26 acres of wetlands and open water areas, and was deemed to be the least damaging practicable alternative that satisfies the project purpose and need.

The modified alternative H also reflects a new road layout. The net effect of these changes has been to eliminate three new at grade rail crossings off site and to avert potential conflicts with existing vehicular access to the Coast Guard base and the Cogentrix facility.

These avoidance measures have reduced impacts to forested wetlands from 12.1 acres to 6.88 acres and reduced tidal vegetated wetlands impacts from 7.39 acres to 6.95 acres. Impacts to wetland resources are necessary to accommodate the infrastructure required to support of project's overall purpose and need. These impacts represent the least damaging practicable alternative and are proposed to be fully mitigated onsite thereby assuring no overall net loss of wetland functions. This is consistent with the Corps general "no-net-loss" policy established for wetlands impacts.

A graphical summary of the onsite analysis is provided in the following table.

Table 5-1 – On-site Alternative Development Analysis

Alternative	Terminal Area* (Acres)	Wharf Length (+ Dolphins) (Feet)	Wharf Footprint (Acres)	Potential Open Water Fill (Acres) "A"	Potential Wetland & Mudflat Fill (Acres) "B"	Comparative Combined Impact (Acres) "A" + "B"
A	412.5	4575 +125	11.7	65.31	56.75	122
B	374.6	4575 +125	11.7	65.31	29.47	95
C	372.3	4575 +125	11.7	64.45	28.88	93
D	344.9	3750 + 250	9.6	43.03	30.62	74
E	329.4	3750 + 250	9.6	43.03	21.87	65
F	344.6	3750 + 250	25.2	0.00	49.73	50
G	297.1	3750 + 250	9.6	12.65	21.87	35
H	298	3750 + 250	9.6	2.07	29.62	32
H modified	291.2	3750 + 250	9.6	2.07	23.98	26

C. Dredged Material Disposal Alternatives

Alternatives evaluated by the applicant include use as on-site fill material, beach nourishment, manufacture of construction materials, ocean dumping, and disposal in the Craney Island Management Area. The applicant performed a dredged material disposal alternatives analysis that resulted in the production of a report entitled, "Marine Container Terminal Permit Support Document". The Corps has independently evaluated this analysis and agrees with its conclusions. The report is hereby incorporated by reference into this EA.

Additional on-site fill material is not required at the site for the proposed development. Beach nourishment is not practical due to the insufficiency of sand with appropriate grain size. Incorporation of the dredged material into construction materials (e.g., lightweight aggregate blocks) is engineeringly possible, but economic practicability would require a long-term investment in equipment and a reliable stream of raw materials. The blocks produced would also have to successfully compete in a market dominated by established companies that manufacture and sell conventional lightweight aggregate blocks. Concentrations of cadmium and polychlorinated biphenyls (PCB) found in the dredged sediments somewhat exceed the trace limits required for ocean dumping. Disposal at Craney Island appears to be practicable if the dikes and berms are raised, and some of the suitable sediment can be used for those purposes.

Disposal of the dredge material at Craney Island is the most practical alternative based on consideration of soil characteristics, constituents, and volume. The proposed dredge materials may need to be confined within a managed disposal area due to the constituent analysis. Approximately 2 million cys of the sandy material could potentially be used to further raise the berms and dikes during operation of Craney Island. Therefore, disposal of the dredge material at Craney Island may provide a beneficial use by contributing towards construction of Craney Island's berm and dike system.

Craney Island is estimated to last until 2029 based on projected total inflows of about 100 mcy. If all the APM terminal material is placed at the site, Craney Island is projected to last until 2025.

IV. AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES of the PROPOSED WORK

A. PHYSICAL RESOURCES

1. Substrate Conditions

Affected Environment: A subsurface investigation was performed at the site between May 24, 2002 and June 21, 2002. Thirty-two soil borings were performed in order to supplement an additional twenty-four soil borings previously performed at the APM Terminals property by others.

Between June 6, 2002 and June 13, 2002, the proposed dredge area within the Elizabeth River was sampled at nine random locations. One additional baseline sample was collected outside the proposed dredge limits. Bulk sediments were tested for priority pollutant metals (silver, arsenic, beryllium, cadmium, copper, chromium, nickel lead, antimony, selenium, thallium, mercury and zinc), semivolatile organic compounds, organochlorine pesticides, Polychlorinated biphenyls (PCB) aroclors and congeners and Total Organic Carbon (TOC) using the most current Environmental Protection Agency (EPA) SW 846 guidelines. Onsite sediment sampling revealed higher concentrations of priority pollutant metals nearer the main channel of the river including zinc, arsenic, chromium and cadmium. Sites closer to shore were generally cleaner with higher concentrations of total organic carbon (TOC). In addition, PCBs were detected at nine of the ten sampled sites, mostly within the top 10 feet of sediments.

Consequences: Sample results were compared to The Effects Range Low (ERL) and Effects Range Median (ERM) screening guideline values developed by Long et al (1995) which are used by the National Oceanographic and Atmospheric Administration (NOAA) for baseline ecological evaluations. Generally, surface samples exhibited values in excess of the ERL for priority pollutant metals (i.e. silver, arsenic, beryllium, cadmium, copper, chromium, nickel lead, antimony, selenium, thallium, mercury and zinc). Arsenic levels in exceedences of the ERL were found at depth at sites near the mainstem of the Elizabeth River.

Overall, comparisons with the ERL revealed limited exceedences across the proposed dredge area however, cadmium concentrations on much of the site exceed over board disposal standards. Therefore, the 10.3 million cys of material from the dredging of 189 acres of Elizabeth River bottom will be pumped directly into Craney Island.

Only minimal adverse effects are anticipated because dredged material disposal in Craney Island will isolate these constituents from the natural environment. In fact, polluted sediment removal from the Elizabeth River may have a beneficial effect. Based on the sediment transport modeling, the secondary impact associated with re-suspension of elements and transport out of the dredge area is also expected to be minimal.

2. Water Quality

Affected Environment: The Chesapeake Bay Program (CBP) has developed a water quality status and trends report to monitor the overall health and well being of the Chesapeake Bay and it's tributaries. The Elizabeth River rates poor as habitat for submerged aquatic vegetation (SAV), poor for suspended solids, poor for chlorophyll a and poor for water clarity. Additionally, the river has rated an improving score for bottom dissolved oxygen, total phosphorus and total nitrogen. Total nitrogen and phosphorus levels have been decreasing over the last five years (CBP Current Trends database, 2002).

VDEQ's sampling data for major water quality elements in the Elizabeth River does not reveal any target areas of concern. With the exception of copper, all metals showed low dissolved levels. Dissolved copper levels were highest in the Southern Branch, where the VDEQ water quality criteria were exceeded at four stations. Overall, dissolved metals in the water column were not a concern.

Water quality in the vicinity of the proposed project is considered poor but improving as nutrient levels decrease in the water column. Nitrogen and phosphorus levels are elevated, but lower than they have been measured over the last five-year period. Total suspended solids levels are high, also indicating that water clarity is poor.

Dredging Impacts on Water Quality

Consequences: The dredging of the APM Terminal project will create a suspended sediment plume that will last throughout the dredging operation. The plume will primarily be contained in the immediate vicinity of the dredge area, due to the low ambient current velocities at the site. This is due to relatively weak pre-dredge currents near the proposed terminal. These currents will become weaker as the dredging continues, thus further limiting the spread of the resuspended sediment. On ebb tides, a portion of the plume, composed of very fine sediment particles in suspension, will travel north in the two-way navigation channel past the Navy Fuel Depot, and eventually into Hampton Roads. On the subsequent flood tide, this water with fines still in suspension will be carried back into the dredge area, and concentrations will increase because of the relative level of suspended sediment in the "background" water.

The suspended sediment concentration in the water that normally dilutes the concentration near the dredge location steadily increases until a steady state concentration is reached. This is expected to occur over a period of approximately 10 days. At steady state, the daily average concentration remains constant, but the hourly concentrations vary with the tides. Steady state increases in suspended sediment concentration associated with the dredging operations range from approximately 30 mg/l adjacent to the dredge, to approximately 12 mg/l at a distance of 2 kilometers away from the dredge.

The long term, depth-averaged background suspended sediment concentration in the Elizabeth River near the dredge area is 20 mg/l, compared to the short term, storm induced suspended sediment concentrations as high as 76 mg/l on a depth-averaged basis and 127 mg/l near the bottom. The steady state increase in suspended sediment associated with the dredging activities is on the order of the background concentration in the Elizabeth River, and within the natural short-term variability in the background concentrations.

The proposed dredge plan has been developed in a manner to minimize both the short term and long term effects of the suspended sediment plume. This project proposes the use of suction cutter head dredging

equipment that minimizes turbidity plumes compared to the typical clamshell dredge. The sediment that is disturbed by the cutterhead dredge remains primarily in the lower portion of the water column. During the majority of dredging in the berthing area, the depth of water in this "bathtub" will be deeper than the surrounding area, and thus the sediment contained in the lower portion of the water column will not be able to escape the "bathtub". The Elizabeth River system adjacent to the project site recovers rapidly; dredge-induced suspended sediment concentrations decrease to less than 5 mg/l within 2 days following the termination of dredging operations.

Minimal dredging impacts on water quality are anticipated.

Storm Water Impacts on Water Quality

Consequences: The City of Portsmouth and the Chesapeake Bay Preservation Act (CBPA) requires the use of Best Management Practices (BMP) for water quality to remove pollutants prior to discharging storm water off-site. Storm water quality control will be accomplished through the use of retention basins, which have been sized to provide storm water pollution removal in excess of that required for the site. These retention basin practices will be further enhanced through the provision of vegetated aquatic benches, the use of a multi-celled configuration, and the use of submerged outlet structures. Inline structural practices will be provided upstream of the proposed basins in the form of engineered oil-grit separators to minimize the transmission of floatables and oils to the basins. The Bentonite Carbon Clay Filter and the Faircloth Skimmer were evaluated and determined to be inefficient and impractical. All of the practices described herein will be incorporated into storm water management and maintenance planning to ensure proper operation, functionality, and longevity.

Water quantity impacts are not a concern since the site discharges directly into the tidal waters of the Elizabeth River with no potential downstream flooding impact from either pre-developed or post-developed runoff.

The use and application of low impact development (LID) techniques to the project site were considered from the early stages of the development of the storm water management plan. Infiltration-based practices were screened and rejected based on physical site constraints. The recommended separation between the bottom of the infiltration practice and the seasonal high groundwater table cannot be practically met. However, the underlying principles of LID were incorporated through the reduction of storm water pollution sources on the site, proper storm water pollution prevention planning, and the use of non-structural practices, such as frequent street sweeping.

Several different State agencies administer regulations designed to protect water quality from storm water impacts, such as the VPDES program (VDEQ), Virginia's Storm water Management Regulations (VDCR), and the Chesapeake Bay Preservation Act (Chesapeake Bay Local Assistance Department [CBLAD]). In summary, storm water quality is a major regulatory issue that will require comprehensive planning during all phases of the proposed development. Regulatory requirements will be met and environmental impacts avoided by a comprehensive storm water management plan that provides appropriate BMP technology and is designed to achieve a high level of treatment for the facility.

Therefore, minimal storm water impacts on water quality are anticipated.

3. Hydrology

Affected Environment: A numerical modeling investigation was conducted to characterize the hydrodynamic characteristics of the Elizabeth River adjacent to the APM Terminals property. The modeling investigation evaluated ambient current circulation patterns in the Elizabeth River to determine the freshwater flushing capacity of the Elizabeth River and Lake Kingman resulting from storm water runoff from the marine container terminal.

The Surface Water Modeling System (SMS) was used in the numerical investigations. This modeling package contains both the RMA-2 hydrodynamic model, which solves water velocities and water surface elevations and the RMA-4 water quality model that describes the fate and transport of constituents traveling through the system. The two models run independently. Once a hydrodynamic model simulation was completed, the

results were used to investigate various water quality scenarios. The applicant documented the results of these two model runs in a report entitled, "Elizabeth River Hydrodynamic & Water Quality Modeling Final Report" dated September 11, 2002 and a report entitled, "Sediment Transport Modeling of Elizabeth River Dredging, APM Terminals Marine Container Terminal Portsmouth, Virginia" dated March 19, 2003. The Corps has independently evaluated these reports and agrees with the conclusions. The reports are hereby incorporated by reference into this EA.

Depth-averaged, pre-dredging currents in the Elizabeth River adjacent to the APM Terminal property are very weak, generally averaging less than 0.02 m/sec. During a typical flood tide, the current velocities are highest in the main navigation channels and generally slow considerably in the shallow areas adjacent to the channels. The maximum current velocity in the shallow water area adjacent to the project site is less than 0.04 m/sec.

During certain tidal conditions, a large-diameter eddy is generated adjacent to the project site, which is located in a sheltered area bordered by land on three sides. Generally, the eddy is formed at the conclusion of both flood tides and ebb tides. A clockwise eddy is generated as the flow in the main channel of the Elizabeth River runs past the southeastern tip of Craney Island. The circulation of this eddy pattern reverses direction to a counter-clockwise direction at the conclusion of an ebb tide. The ebb tide eddy does not appear to be as well developed as the flood tide eddy.

Consequences: The modeling effort revealed that post-dredge ambient currents at the project site would remain very weak, averaging less than 0.02 m/sec. While there was a slight reduction in current velocity at the project location due to the deepening of the area, the magnitudes of the currents pre-dredging and post-dredging were so small that minor changes in these small currents were insignificant.

Model investigations have demonstrated the flushing capacity of the post-dredge conditions at the project site. Figure 37 of the Sediment Transport Modeling of Elizabeth River Dredging Final Report (CH2M HILL 19 March 2003) shows how the site flushes from a uniform concentration spread over the depth. Numerical results show that the site flushes to within 10% of the initial concentration in approximately 3 to 4 days. This result can be extended to evaluate the formation of anoxic conditions at the project site. The flushing of the site over 3-4 days will minimize formation of low dissolved oxygen waters at the site. Furthermore, the movement of vessels into and out of the project site on a regular basis will contribute to the mixing of near bottom waters, thus dispersing low oxygen waters that may build up near the bottom.

The large-diameter eddy patterns continue to develop adjacent to the project site near the conclusions of flood tides and ebb tides for the post-dredging condition. The eddy patterns for the post-dredging conditions are slightly more developed than those formed during the pre-dredging conditions due to the deeper water in the post-dredging condition.

The hydrodynamic results from the post-dredging conditions were then used in the water quality model to investigate the effect of increased runoff from the developed marine container terminal on the salinity structure in the Elizabeth River adjacent to the project site. A 25-year storm event was used as the design storm for these simulations.

Two separate investigations were made. The first investigation included three freshwater outfall discharges along the wharf bulkhead. The second investigation addressed the weir outflow from SWM Basin #2 into Lake Kingman. Results from the first investigation show a narrow region in which the salinity is temporarily depressed due to the storm water runoff from the project site. This region is defined by the shoreline (wharf) on the west, Craney Island on the north, the jetty on the south, and the navigation channel on the east. Once the freshwater plume hits the main channel, it is rapidly dispersed through turbulent mixing with the relatively faster moving waters. After 15 hours, runoff from the storm drains becomes negligible. The reduction in salinity is localized and nearly returns to normal approximately 18 hours after the conclusion of the storm hydrograph. Freshwater runoff from the project site associated with a 25-year storm event has a short-term effect on the salinity concentration in the area immediately adjacent to the project site and no effect on areas of the Elizabeth River outside of this immediate area.

Results from the second investigation, focusing specifically on Lake Kingman, showed a rapid recovery of the salinity structure following the elevated freshwater discharge associated with the 25-year storm. The Lake recovers rapidly due predominantly to its low volume at low tide. Runoff associated with the 25-year storm peaks at approximately hour 12.5 of the simulation. As a result, freshwater flushing events have a limited effect on the salinity structure in Lake Kingman. Freshwater is rapidly removed from the marsh by tidal exchange.

No significant adverse impacts to hydrology are anticipated.

4. Groundwater Resources

Affected Environment: The principal source of hydrology in the system is precipitation, and hydrodynamics are characterized by vertical fluctuation with little or no surface water transport or groundwater discharge. Water is generally lost from the system by evapotranspiration and/or infiltration to underlying groundwater.

Consequences: There are no designated sole source aquifers in the area regulated by Section 1424(e) of the Safe Drinking Water Act (SDWA) and no wellhead protection areas in the area regulated by Section 1428 of the SDWA. Portsmouth has a mandatory drinking water connection ordinance; therefore all wells present are for irrigation purposes. The APM project will not withdraw any groundwater for its use, nor is APM's use of the property the type of use that would be expected to have any impact on groundwater quality.

No significant adverse impacts on groundwater resources are anticipated.

5. Soil & Mineral Resources:

Affected Environment & Consequences: The proposed APM site is Portsmouth's largest undeveloped tract of land under a single private ownership on the Elizabeth River. Approximately 300 acres of the site will be converted from existing agricultural fields to developed area. Although this project represents a loss of agricultural soil, the City of Portsmouth's Comprehensive Plan determines the property is best suited for uses involving deep-water port facilities.

Although this is a large loss of agricultural land, no significant impacts are anticipated.

6. Air Quality

Affected Environment: EPA and the Virginia Department of Environmental Quality (VDEQ) oversee air quality issues in this area. Air monitoring is conducted at a number of locations throughout the Commonwealth of Virginia. Most are operated under the National Air Monitoring System (NAMS) and /or the State and Local Air Monitoring System (SLAMS) program. The proposed project area is designated as a maintenance/attainment area for O_3 and is in attainment of all other NAAQS concentrations.

Consequences: The trucks, trains, and ship traffic calling the new marine container terminal are not anticipated to have significant impacts on air quality nor will they degrade the areas ability to meet maintenance/attainment limits for ozone.

The ship-to-shore cranes that unload and load container cargo to and from the vessels at APM Terminals existing facility are diesel powered. All of the ship to shore cranes at the proposed APM Terminal facility will be electric powered and will not generate emissions that would normally otherwise be produced by diesel powered cranes.

This project has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. It has been determined that the activities proposed under this permit will not exceed de minimis levels of direct emissions of a criteria pollutant or its precursors and are exempted by 40 CFR Part 93.153. Any later indirect emissions are generally not within the Corps continuing program responsibility and generally cannot be practicably controlled by the Corps. For these reasons, a conformity determination is not required for this permit. Only minimal adverse effects are anticipated.

B. BIOLOGICAL RESOURCES

1. Threatened & Endangered Species

Affected Environment: No federally listed or state listed threatened or endangered species have been reported on the landside of the project site.

Several sea turtle species appear seasonally in the lower Chesapeake Bay. All five are federally listed species. The most common is the Federally threatened loggerhead turtle (*Caretta caretta*). Loggerheads account for close to 90 percent of the summer sea turtle population. VIMS has estimated that between 2,000 and 10,000 young loggerheads use the Chesapeake Bay each summer as foraging areas. The Loggerhead sea turtle is Federally listed as threatened and State listed as endangered. It is a common visitor to the Chesapeake Bay and its estuarine tributaries during the spring, summer, and fall. Hampton Roads is considered an estuarine tributary to the Chesapeake Bay. The loggerheads' diet consists of benthic crustaceans (primarily horseshoe crabs), bivalves, jellyfish, sponges, crabs, shrimp, barnacles, fish, and sea grasses. Nesting has been reported on the barrier islands and in Back Bay National Wildlife Refuge. Juveniles become residents for the summer and occupy channel edges, foraging back and forth along the bottom within a home range of 10 to 80 square kilometers.

A number of Kemp's Ridley (*Lepidochelys kempii*) sea turtles also summer in the Chesapeake. The Kemp's Ridley is the second most abundant sea turtle in the Chesapeake Bay and is Federally- and State-listed as endangered. The only known nesting ground of Kemp's Ridley is a single location along the Gulf of Mexico. Young Kemp's Ridley turtles feed on sargassum weed and associated species. Adult Kemp's Ridley turtles feed primarily on shelled benthic invertebrates including Blue Crabs. Research suggests that these turtles rely heavily upon the Chesapeake Bay during juvenile stages.

The other marine turtles that may be found in the region include the endangered leatherback (*Dermochelys coriacea)*, Atlantic hawksbill (*Eretmochelys imbricata*), and the Atlantic Green Sea Turtle *(Chelonia myda*s). These three species are found only rarely in the Chesapeake Bay area.

Based on information from VIMS, turtles are present within the Chesapeake Bay each year from May to November when temperatures are from 16 to 18 degrees Celsius. The peak migration into the Chesapeake Bay occurs during late May and early June. Virginia coastal water temperatures drop to 1 to 4 degrees Celsius during most winters prompting turtle migration out of the Chesapeake Bay to warmer waters during October and November.

Consequences: No federally listed or state-listed threatened or endangered species have been reported on the landside of the project site. Dredging will be hydraulic pipeline dredging which is not known to impact sea turtles. No adverse effects are anticipated.

2. Fish and Invertebrates:

Affected Environment: Sampling conducted by the Chesapeake Bay Program and the Benthic Biological Monitoring Program of the Elizabeth River generally indicates that the benthic environment in both the Bay and the Elizabeth River is degraded to marginal but is beginning to show improvements as a result of the restoration efforts in the Chesapeake Bay watershed.

a. Benthic Habitat

The shallow-water zone includes areas with water depths to approximately 12 feet, including the underlying sediments. This area extends channelward from the existing shoreline to a distance of approximately 1500 feet off shore. Finfish, oysters, clams and worms may inhabit these areas although direct harvesting of shellfish for consumption is banned. Benthic assemblages are thought to be good overall indicators of system health because they are sedentary and unable to move away from stressors. Many are long-lived and can, by their presence or absence, indicate the suitability of an area for particular species. Benthic assemblages in the Elizabeth River have been monitored under a study performed by Dr. Dauer, (Dauer 2000, 2001, 2002).

The Elizabeth River study uses the benthic index of biotic integrity, (B-IBI) to calculate system health and compare temporal trends. The (B-IBI) is a single number representing a multi-metric index created to allow comparison of benthic samples gathered over a wide variety of habitats. The B-IBI is calculated by scoring several attributes of the benthic community structure and function according to thresholds established from the reference data distribution. The study used scoring ranging from 1 to less than 5. Samples with index values of 3.0 or higher are considered to meet the restoration goals set in the Chesapeake Bay Program (CBP 1994), which describe the characteristics of benthic invertebrate assemblages expected in non-degraded habitats of the Bay. Values of less than 2.0 were classified as severely degraded, 2.0 to 2.6 were degraded, and 2.6 to less than 3.0 were marginal. Two fixed stations adjacent to the APM Terminal had B-BI scores between 2.6 and 3.6 for the years of 1999, 2000, and 2001. Dr. Dauer's Elizabeth River Monitoring study has revealed high species diversity, biomass, and abundance of pollution sensitive organisms at these two sites adjacent to the proposed dredging area when compared to other sites in the river.

Consequences: Sampling conducted by both the Chesapeake Bay Program and the Benthic Biological Monitoring Program may not directly correlate with the APM property since the biotic results depend on the exact location of data points. The data tend to support a conclusion of a healthier Elizabeth River ecosystem toward the mouth of the river as compared to the southern reaches but variability between relatively close sample sites causes concern when generalizing outside of the areas sampled. For instance, observations in the area to be dredged by APM Terminal project team revealed no living organisms, only shell fragments and darkened, oxygen-poor sediments.

Short-term impact to benthic resources associated with localized sedimentation during dredging operations has been evaluated. The modeling of sediment transport during dredge operations suggests that weak current velocities combined with the method of dredging will minimize sediment transport out of the dredge area.

Long-term impacts to benthic resources are conversion of shallow water habitat to deep-water habitat. The largest potential impact to the benthic assemblages will be the direct loss of shallow water habitat. The area adjacent to the APM Terminal property is shallow (0 to 10 feet) in areas that have not been previously impacted by dredging. This area (approximately 100 acres) will be converted from shallow-water to deep-water habitat. However, the conversion of shallow water habitat to deep-water habitat does not equate to lowered B-IBI scores. The data in the Elizabeth River study indicates that deep-water sites (10 meters or greater) also achieve high B-IBI scores. Fifty percent of the shallow water samples resulted in a B-IBI value of 3.0 or greater. Comparatively, 43% of the deeper sites had a B-IBI value greater than 3.0. Thus, the individual proportions of the shallow and deep sites satisfying B-IBI standards appear similar.

There is concern that much of the sediment in the Elizabeth River is contaminated with chemicals and metals. Constituent analysis of the sediment samples revealed areas of elevated priority pollutant metals and PCB's within the proposed dredge area. The dredging of the sediments during construction will remove these polluted sediments from the Elizabeth River bottom thereby exposing healthier sediment in which organisms can re-colonize.

No significant adverse effects are anticipated to benthic habitat.

b. Essential Fish Habitat (EFH)

Affected Environment: The proposed project area is part of a 10 degree x 10 degree square of latitude and longitude that includes the waters of the lower Chesapeake Bay that support the following species with a Fishery Management Plan (FMP).

Table 4-1 Essential Fish Habitat

Species	Eggs	Larvae	Juveniles	Adults
windowpane flounder *(Scopthalmus aquosus)*				X
bluefish *(Pomatomus saltatrix)*			X	X
Atlantic butterfish *(Peprilus triacanthus)*	X	X	X	X
summer flounder *(Paralicthys dentatus)*		X	X	X

black sea bass *(Centropristus striata)*	n/a		X	X
king mackerel *(Scomberomorus cavalla)*	X	X	X	X
Spanish mackerel *(Scomberomorus maculatus)*	X	X	X	X
cobia *(Rachycentron canadum)*	X	X	X	X
red drum *(Sciaenops occelatus)*	X	X	X	X
dusky shark *(Charcharinus obscurus)*		X		
sandbar shark *(Charcharinus plumbeus)*		X	X	X
sandbar shark *(Charcharinus plumbeus)*		HAPC	HAPC	HAPC

HAPC – Habitat Area of Particular Concern

Habitat Areas of Particular Concern (HAPC)

The NMFS designated HAPCs for the sandbar shark, but not for any other Atlantic highly migratory species (HMS) due to a general lack of scientific information detailing HMS-habitat associations. The larger area within which the project site is located has been identified as one of these areas; however, there are no management or fisheries restrictions in place in or around the project area at this time.

Consequences: Short-term increases in turbidity and settlement associated with dredging may be detrimental to sensitive eggs, larvae, and juvenile life stages in the localized area represented by the Sediment Transport Model. Some effect on adult resident and seasonal finfish within the Elizabeth River may occur, however, the increase in suspended sediment associated with the dredging activities is on the order of background concentrations in the Elizabeth River, and within natural short-term variability of background concentrations.

Our assessment of the project leads us to a preliminary determination that it will not have a substantial adverse effect on EFH and therefore expanded EFH consultation is not required. No significant adverse impacts on fish species are anticipated.

3. Terrestrial Ecosystems

Affected Environment: Terrestrial or upland areas on the APM Terminals site are dominated by active farm fields, fallow fields, secondary growth scrub communities, and pine dominated forests. On-going agricultural and prior logging activities have kept the majority of the site from developing into tertiary growth forests, however portions of the western limits of the site do contain fairly open hardwoods. The vegetation communities within the project site may provide habitat for a variety of wildlife species including the fox squirrel *(Sciurus niger)*, gray squirrel *(Sciurus carolinensis)*, Virginia opossum *(Didelphis virginiana)*, eastern chipmunk *(Tamias striatus)*, woodchuck *(Marmota monax)*, white-footed mouse *(Peromyscus leucopus)*, gray fox *(Urocyon cinereoargenteus)* white-tailed deer *(Odocoileus virginianus)* raccoon *(Procyon lotor)*, and eastern cottontail *(Sylvilagus floridanus)*. Typical amphibians and reptiles that could be found in this habitat include the coastal plain cricket frog *(Acris gryllus gryllus)*, southern leopard frog *(Rana sphenocephala)*, northern spring peeper *(Pseudacris crucifer crucifer)*, northern black racer *(Coluber constrictor)*, eastern hognose snake *(Heterodon platirhinos)*, and black rat snake *(Elaphe obsolete obsolete)*. Birds commonly found in the area of the project site are the barn owl *(Tyto alba pranticola)*, great egret *(Ardea alba egretta)*, yellow-crowned night heron *(Nyctanassa violacea violacea)*, green heron *(Butorides virescens)* and mourning dove *(Zenaida macroura)* (DGIF, Wildlife Information Service, 2003).

Consequences: The majority of the non-wetland areas present of the subject site are comprised of active and fallow farm fields, a portion of which will be converted into the terminal yard. The pine dominated forests found in the southern regions of the site may be impacted under the proposed mitigation plan by converting these areas to non-tidal wetland community and replacing monotypic stands of pine with a more diverse assemblage of desirable wetland tree species. Alternatively, this pine forest may remain undisturbed and mitigation accomplished through a donation to an in-lieu fund or mitigation bank

The mature upland hardwood communities found within the western portions of the site will remain largely intact with the exception of the required linear features associated with road and rail access. APM Terminals has attempted to minimize these impacts by aligning infrastructure adjacent to existing facilities.

Minor encroachments into existing forested areas will occur along existing roadways to provide necessary ingress and egress for both road and rail traffic utilizing the proposed facility. The development of the proposed facility will most notably affect current open space areas associated with active farm fields and the tidal shoreline along the Elizabeth River. Those species dependant on these habitats will be eliminated.

No significant adverse effects are anticipated.

4. Wetlands and Vegetated Shallows

Affected Environment: A detailed delineation of jurisdictional wetlands and other waters of the United States was conducted by WEG on the subject property between February 1 and March 15, 2002. A confirmation of the wetland delineation was obtained from the Corps in a letter dated April 30, 2002.

The Elizabeth River shoreline totals approximately 4,900 linear feet on the APM Terminals Property, and is composed of open water, mud flats, and scattered tidal marsh paralleling a sandy shoreline. The majority of the emergent, tidal wetlands are found along the shoreline of the Elizabeth River, in the headwaters of Lake Kingman, and in the tributaries of Craney Island Creek. Some areas along the wetland/upland boundary consist of a scrub saltbush community.

Headwater drainages are positioned at the head of tidal guts in Craney Island Creek, Lake Kingman, and the small inland features that drain directly to the Elizabeth River. Hydrology in these areas is derived from a combination of ground water and surface water, but functions are limited by the small size of these systems relative to the downstream tidal resources. In addition, the narrow drainages provide limited riparian substrate otherwise important in providing buffer between uplands and stream flow. Water source functions are provided by ground water subsidies, which are typically conducive to high primary productivity and complex habitat structure. However, habitat is somewhat degraded in areas due to encroachment of non-native or invasive species (e.g., common privet, Japanese honeysuckle, common reed). Wildlife functions are negatively affected by decreases in habitat heterogeneity and plant diversity and the lack of open water habitat for aquatic fauna. Headwater drainages represent a minor component of the overall wetland assemblage on the APM Terminals Property. Because of this limitation, and a combination of other factors (buffer degradation, disturbance, alteration of ground water and surface water hydrology, land use change, etc.), these wetlands may not develop the hydrogeomorphic properties characteristic of highly functional headwater wetlands.

An approximately 112-acre non-tidal, mineral flat wetland complex is located in the central portion of the property. The large wetland complex is fragmented by old logging roads and isolated from other regional wetland resources by major roadways and agricultural fields. This wetland area is bordered to the east by agricultural fields, to the west by Coast Guard Boulevard, and to the south by uplands adjacent to Wyatt Road. Functional capacity for maintenance of water level regimes is reduced by fragmentation, surface water transport isolation from other sources, and prior activities such as logging, ditching, and clearing for agriculture. In addition, characteristic plant community functions are limited by prior logging, which has resulted in the reduction in stand diversity (i.e. replacement of native hardwoods with timber species such as loblolly pine), and the introduction of non-native or problematic species such as Japanese honeysuckle. Logging has also reduced available food resources such as mast-producing trees (e.g. oaks), and by other factors such as the loss of coarse woody debris, tree cavities, and dead standing timber. Wildlife habitat functions are further reduced by isolation due to surrounding land use, which removes the opportunity for the wetland to function as a regional corridor for migration.

Consequences: Tidal Fringe wetlands along the Elizabeth River shoreline represent areas most heavily impacted by the proposed project and include a scattered distribution of salt marsh cordgrass (*Spartina alterniflora*) populations on otherwise nonvegetated sandy beach or mud flat community. Overall functional capacity for several functions (e.g. tidal surge attenuation, tidal nutrient and organic carbon exchange, sediment deposition, and wildlife habitat functions) is limited by the lack of connectivity among *Spartina* populations, the

relatively small surface area in comparison with other Tidal Fringe systems (e.g. Craney Island Creek), and the lower relative biomass and plant density. Impacts to tidal wetlands are necessary for the proposed water-dependent facility and will be mitigated onsite. Approximately 6.95 acres of tidal vegetated wetlands will be impacted of the 29 acres of marsh on the property. These impacts will be fully mitigated as described in the Mitigation section.

The tidal guts in the Craney Island Creek watershed have been least affected by direct manipulation (e.g. damming, dredging, etc.) or adjacent land use/land change (e.g. agriculture, development, etc.). As a result, the Craney Island Creek salt marshes retain higher functional capacity. These areas along Craney Island Creek will remain largely intact and undisturbed.

Only 5 acres along the edges of the approximately 112 acre non-tidal forested, mineral flat wetland will be impacted. The rest of the forested wetland area will be preserved through conservation deed restriction. Another 1.88 acres of forested wetlands in the headwater drainages will be filled for total of 6.88 acres of forested wetland impact. These impacts will be fully mitigated as described in the Mitigation section.

No significant adverse impacts to tidal and non-tidal wetlands are anticipated.

5. Mudflats

Affected Environment: Approximately 12 acres of tidal mudflats are located along the Elizabeth River shoreline. These mudflat areas are interspersed among the vegetated communities and extend channelward from the eroding scarp to the mean low water mark. They may be utilized by burrowing species and as foraging areas for shore birds.

Consequences: Mudflat areas located landward of the proposed bulkhead line will be filled in association with the construction of the proposed marine terminal. Those mudflat areas located channelward of the bulkhead line will be converted to deep-water habitat in association with the required dredging operation. The functional replacement of the 10.1 acres of mudflats lost has been incorporated into the overall mitigation plan, which includes the creation of a highly productive tidal wetland system onsite described in the Mitigation section.

No significant adverse effects are anticipated.

C. CULTURAL RESOURCES

Affected Environment: The APM Terminals property and portions thereof have, over the years, undergone periodic archaeological review. Several distinct survey efforts have recorded a total of 24 archaeological sites within the uplands and two potential submerged sites suspected to be associated with the CSS Virginia. In an effort to characterize this body of work for review by the State Historic Preservation Officer (SHPO), APM Terminals retained two archeological firms to test the validity of the previous efforts. Cultural Resources, Inc. (CRI) and Tidewater Atlantic Research, Inc. (TAR) examined the terrestrial and submerged areas of the site, respectively.

In general, the CRI investigations determined that the previous work on the property is valid. Sites identified during the 1977 and 1981 surveys were reidentified during the CRI survey. In these instances, the data recovered and the overall recommendations of the CRI survey remained consistent with the findings of the original surveys. Investigations conducted outside of the areas previously surveyed revealed some artifacts from within plow zone but the investigation did not yield any evidence of undisturbed soil layers or intact subsurface cultural deposits. Five terrestrial sites, (44PM12, 44 PM13, 44PM24, 44PM34 and 44PM36) are recommended for further study should they be impacted by the project.

The remote sensing investigation of the submerged survey area identified a total of 58 magnetic and/or acoustic anomalies and one large cluster of exposed dredge pipes. Analysis of the magnetic data identified a total of eight anomalies that have a moderate or high potential association with shipwreck material. Of those eight, two targets (CI-21and CI-22) are located within the proposed dredge area and may be located near the historic location of the remains of the Confederate ironclad CSS *Virginia*.

Consequences: Based upon the results of the current survey as well as those of the previous investigations additional Phase II investigation of terrestrial sites 44PM12, 44PM13, as well as submerged sites CI-21 and CI-22 are recommended. The Virginia Department of Historic Resources is also recommending Phase I investigation for portions of the site not previously examined.

APM Terminals has currently entered into discussions with the Virginia Department of Historic Resources and the U.S. Army Corps of Engineers regarding the establishment of a Memorandum of Agreement (MOA) that will itemize the process and procedures to be followed to maintain compliance with Section 106 of the National Historic Preservation Act. The terms of the MOA will be satisfied as a condition of permit issuance.

No significant adverse effects are anticipated.

D. SOCIOECONOMIC

1. Land Use

Affected Environment: The majority of the non-wetland areas present on the subject site are comprised of approximately 300 acres of active and fallow farm fields.

The City of Portsmouth has zoned the proposed project site M-1 and M-2. Uses allowed in an Industrial M-1 district include wholesale activities, warehouses, and light industrial operations. Industrial M-2 uses include manufacturing, assembling and fabrication activities. M-2 districts can include large-scale or specialized industrial operations. The applicant has coordinated with the City of Portsmouth and the Chesapeake Bay Local Assistance Department (CBLAD).

Consequences: Approximately 300 acres of the site will be converted from existing agricultural open space to developed area. The proposed use for the APM Terminals site is well suited to the M-1 and M-2 zoning designations and is consistent with other development activity within the Elizabeth River watershed. All Chesapeake Bay Program Act requirements have been met on site.

No significant adverse effects are anticipated.

2. Transportation

a. Vessel Traffic

Affected Environment: Vessel traffic in the Hampton Roads waterways is comprised of vessels destined for and departing from the many harbor installations, bases, shipyards, dry docks, coal loading facilities, and marine container terminals. Nearly all of the world's major shipping lines call on Hampton Roads.

Data indicates that the total number of vessel movements calling Hampton Roads port facilities has been declining over the past four decades resulting from the use of larger vessels, having deeper drafts, carrying more cargo that is transported with fewer ships. Containerized cargo vessels and RoRo vessels calling the Port of Hampton Roads comprised approximately seventy percent of vessels departing from Hampton Roads during the past five years.

Maersk Sealand currently has vessels that serve the trade lanes of Asia, Europe, the Mediterranean, Middle East and South America. These vessels call upon the APM Terminals Hampton Roads port area. APM Terminals also serves an active barge service in the Hampton Roads port area.

Consequences: It is expected that Suezmax vessels will be introduced in the next three years and will utilize the proposed facility. These vessels will increase container carrying capacity by replacing smaller Panamax vessels without affecting the current number of vessel movements in Hampton Roads.

The location of the APM Terminal site is approximately 1.4 nautical miles closer to the Atlantic Ocean than its existing facility. This will reduce shipping time spent by vessels calling the new terminal and reduce movements further upstream in the Elizabeth River. Thus, there will be less shipping traffic that will affect other commercial shipping or recreational boating.

The APM Terminal site provides more direct access to deepwater commercial shipping channels that presently ends immediately offshore from the site. There are no known plans to extend the deepwater commercial shipping channel further upstream to the APM Terminals existing facility. This limits the ability for larger Post-Panamax vessels to call APM Terminals existing facility and other shallow water facilities. Without deepwater access, vessel traffic navigating the Elizabeth River would increase since future container cargo growth would be increased by increasing the number of smaller Panamax vessels and barges rather than maintaining the current level of vessel traffic using larger capacity Post-Panamax vessels.

b. Rail Traffic

Affected Environment: The Commonwealth Rail Line presently runs along the south side of eastbound Route 164 and passes by the site approximately 500 feet away. This single-track rail line terminates east of the site at a BASF facility located on the Elizabeth River. This line originates 17 miles to the west in Suffolk, Virginia at the Suffolk Junction. The Commonwealth Railway is single track the entire length with a vertical clearance on about 25 feet. This clearance is sufficient to accommodate stack trains, which require about 21 feet, 6 inches. There are two existing vehicular bridges along East Bound and West Bound Route 164 that cross over Coast Guard Boulevard. These bridges were designed and constructed circa 1987 in order to accommodate Coast Guard Boulevard and a proposed United States Government rail line and allow future extension of rail service to the APM Terminals site and the potential future VPA Craney Island Marine Container Terminal. The proposed site has unrestricted rail access to Midwest rail hubs.

Existing service on the Commonwealth Rail Line consists of on average about two eastbound and westbound trains daily running the entire length of the line, providing service to the BASF Facility. Each train run on the line includes 5 to 10 cars. This level of service has been fairly consistent over the past two decades.

Consequences: The proposed APMT rail volume is estimated to consist of a daily average of two east and westbound trains during initial startup in 2006 growing to a daily average of four east and westbound trains by the year 2016. These volumes correspond to 10 and 20 percent utilization of the Commonwealth Railways maximum operating intermodal capacity in the years 2006 and 2016, respectively.

The proposed road and rail access plan shown on Figure 5-22, Rail and Road Access Plan, eliminates the need for the three new grade crossings of Coast Guard Boulevard that were previously proposed. These rail improvements have been identified through coordination with VDOT, VDPRT, USCG, VPA, HRPDC, and the City of Portsmouth in order to provide safe and efficient movement of rail cargo to and from the APM Terminal site.

Train lengths were selected in order to minimize grade crossing delays to the area traffic and the Portsmouth, Chesapeake, and Suffolk communities at the existing crossings along the Commonwealth Railway. Grade crossing improvements will be implemented in order to reduce hazards and conflicts along the Commonwealth Railway at 13 of the 22 grade crossings within twelve miles of the APM Terminal site in order to facilitate efficient, flexible rail operations. The grade crossing improvements include a variety of active and passive protection measures to be implemented at various locations within the existing right-of-way with no associated wetland impacts. Improvements may include installation of flashing lights, upgrade flashers to 12" lenses, adjustment of gate heights, and installation of additional signage and pavement markings.

Since there is no equivalent level of service measure for a grade rail crossing similar to that for signalized and unsignalized roadway intersections, the average traffic queue time has been calculated for each of the existing grade crossings along the Commonwealth Railway. The average traffic queue time represents the delay that would occur at each grade crossing during the peak hour as a result of a train passing through the grade crossing. It is anticipated that a train will travel through a grade crossing no more than two times during the peak hour of the intersecting street.

The traffic queue time was calculated using peak hour traffic volumes derived from information provided by the Virginia Department of Transportation. These peak hour traffic volumes were combined with the average time that the crossing will be blocked by activation of grade crossing protection and the train clearing the intersection. On average, APMT trains will clear each grade crossing along the Commonwealth Railway between 103 seconds and 198 seconds for train speeds varying from 10 to 25 miles per hour.

An average traffic queue time estimate was developed based on the peak hour street traffic volumes and the time each grade crossing is activated. From this average traffic queue time, the average queue time per vehicle has been estimated with regard to the average start up time for the vehicles in the queue. The average waiting time for each vehicle in the queue at all grade crossings within the study area will be between 49 and 99 seconds.

c. Road Traffic

Affected Environment: The site can be accessed by passenger car and single unit vehicle from Wild Duck Lane via Wyatt Drive. Due to posted restrictions, the site can be accessed by truck from Coast Guard Boulevard via West Norfolk Road. Access to Route 164 (Western Freeway) is possible from the Cedar Lane interchange located west of the site or from the West Norfolk Road interchange located east of the site.

Interstate I-664 is approximately 2.5 miles west of the Cedar Lane interchange, and provides access to the Monitor-Merrimac Bridge Tunnel to Newport News, where it connects with I-64. I-64 runs from this point to St. Louis and connects with 1-95 to Washington, DC, New York, and New England. Access to US 17, which crosses the James River Bridge, is nearby. Access to the south and southwest is by I-664 to US 58 and 13, among others.

Consequences: The APMT project team analyzed the existing road network and projected traffic conditions were analyzed with background growth and the APM Terminal truck and car traffic for the opening year 2006 and future year 2016 based on the traffic distribution determined from the trucker surveys. Daily truck traffic in 2006 is estimated to be around 1,500 trucks. Truck traffic is expected to increase to 2,250 trucks in 2016

The appropriate traffic improvements have been identified through coordination with VDOT, VDPRT, USCG, VPA, HRPDC, and the City of Portsmouth in order to enhance traffic safety and provide efficient access to the APM Terminal. These improvements provide the most direct access to and from the APM Terminal site and the Western Freeway, thereby minimizing potential impacts to residential neighborhoods, particularly those surrounding Cedar Lane.

Several alternatives were considered to gain the most direct access to and from the APM terminals site and Route 164 while minimizing impacts to surrounding residential neighborhoods, particularly those surrounding the Cedar Land interchange, and also to provide the U.S. Coast Guard facility separate access without at grade rail crossings or shared access with APM Terminals traffic. The proposed road improvements allow direct access for traffic moving to and from the site while eliminating shared access on secondary roadways. The revised access plan provides road and rail access to the facility without directing truck traffic through residential neighborhoods and maintains unimpeded access to the USCG facility.

Level of service has been determined for each of the intersections, ramps junctions, and weaving areas within the study area. It is a qualitative measure of the operational characteristics of a roadway segment or an intersection, ranging from A, representing the most favorable operating conditions to F, representing the least favorable operating conditions. Level of service D or better is the generally accepted threshold of acceptable operating conditions in a suburbanized study area like the one adjoining the project site.

The proposed roadway improvements will allow all intersections, ramp junctions, and weaving sections within the study area to operate at an acceptable level of service of C or better. The revised access plan readily allows for future implementation of the Third Harbor Crossing/VPA Craney Island Access road.

No significant adverse effects are anticipated for transportation.

3. Noise

Affected Environment: The proposed site for the marine container terminal is bordered to the south by a co-generation power plant and the Western Freeway, to the east by a Federal navigation channel in the Elizabeth River and Lambert's Point Coal Facility, and to the north by a U. S. Coast Guard facility including a live fire small arms and light artillery shooting range. The western portions of the property are forested and generally abut Craney Island Creek. The nearest sensitive receptor locations to the proposed project are the Churchland High School, residences south of Lake Kingman on Van Buren Street, and residences southwest on West Norfolk Road.

Consequences: The change in sound levels were determined by comparing pre-existing sound levels to the total future post-build sound levels. Pre-existing sound levels were measured for day and night time periods. The project generated sound levels were calculated using reference sound levels for the major noise sources at the facility and projecting them to receptor locations based upon acoustical properties of sound propagation over distances and terrain. The results of this comparison are shown on the table below.

	DAY TIME				**NIGHT TIME**			
Monitoring Site Location	Pre-Existing Leg*dBA	Project Leg dBA	Post Build Leg dBA	Difference Post less Pre Leg dBA	Pre-Existing Leg dBA	Project Leg dBA	Post Build Leg dBA	Difference Post less Pre Leg dBA
Van Buren Street	55.9	52.2	57.4	1.5	54.4	52.2	56.4	2.0
West Norfolk Road	63.5	44.0	63.5	0.0	45.1	44.0	47.6	2.5
Churchland Highschool	49.1	40.2	49.6	0.5	44.1	40.2	45.6	1.5

* Leg is the average (equivalent) sound level.

The results of the noise analysis demonstrate that there will be no substantial change in sound levels at the receptor locations due to operating the proposed APM terminal. The residences on West Norfolk Road will experience the highest sound level increase of 2.5 dBA. This level and the other lesser sound levels are below the threshold of perceptibility to the average person. Temporary increases in noise with similar noise levels as above may result from the construction activities associated with the building of this project. These noises will also be temporary and transient.

No significant adverse effects are anticipated.

4. Recreational and Commercial Fisheries

Affected Environment: The Chesapeake Bay and its tributaries contain food and spawning habitat for a variety of marine fisheries, which are utilized by commercial and recreational interests. The Elizabeth River and waters surrounding the proposed port facility produce commercially important species including blue crab and Atlantic croaker. A moderate amount of commercial fishing, including the use of gill nets, occurs in the area adjacent to the proposed port facility for spot, croaker, and striped bass. Blue crabs are harvested for the local seafood market and are exported from the Chesapeake Bay area as well. However, the Elizabeth River has been identified by EPA as a Region of Concern with probable adverse effects on living resources due to chemical contamination. While portions of the project area may be utilized by recreational and commercially important fish species, the documented contamination within this waterway calls into question the relative value of this area to these living resources.

There are no significant oyster or hard clam resources within the vicinity of the proposed container terminal due primarily to the impacts of over harvesting and the diseases MSX and Dermo.

Consequences: Commercial crabbers who may currently use the area to be dredged would have to relocate. Some localized impacts on commercial fishing may occur due to port operations since ship maneuvering and access areas for the terminal would no longer be fished. In particular, some local gill netting activities may have to be relocated outside of ship maneuvering and access areas.

Overall, commercial and recreational fishing would continue much in the same fashion as today, and should be minimally affected by the project. No significant adverse effects are anticipated.

5. Water related Recreation and Aesthetics

Affected Environment: Recreational boaters from the surrounding areas use many areas within the Hampton Roads Harbor for a variety of purposes. Numerous sailing communities with marinas and boat ramps border the project area.

Consequences: During construction of the channels, some operations such as channel dredging, pipeline and heavy equipment movement will be highly visible to waterfront residents and those people living adjacent to the dredged material management site. The dredging operation is likely to cause a localized turbidity increase resulting in some discoloration of the water. Placement of floating and fixed sections of pipeline will temporarily affect the setting of the river and some shoreline areas. However, these temporary impacts are not significant. While aesthetic impacts vary with individual tastes, the impacts of the project are minimal from a national perspective.

Traffic in the Hampton Roads Harbor due to recreational boating would continue to grow commensurate with projected population growth in the region. Organized boating events would continue to be conducted in similar fashion as today; traffic due to this type of activity would also be expected to increase in direct relation to the number of recreational vessels.

No significant adverse effects are anticipated.

6. Environmental Justice

The project has been reviewed for consistency with Executive Order 12898 (Environmental Justice). The proposed port development would not have a disproportionately high and adverse effect on minority communities. The proposed port facility is located within a portion of the City of Portsmouth with a minority population much less (31%) than the overall minority population for the City (54%).

The proposed port development would not have a disproportionately high and adverse effect on low-income communities. The proposed port facility is located within a portion of the City of Portsmouth with a median 1999 household income of $52,944 compared to the rest of the City at $33,742. Census data shows that less than 5% of the population within this portion of Portsmouth is considered low income. Based upon the analysis conducted for this assessment, it was determined that activities associated with the proposed port facility would not have significant adverse impacts on low-income communities within the City of Portsmouth.

No minority or low-income residents will be displaced by development of the port facility. Some minor and short-term adverse impacts to various environmental resources are expected to occur from project construction; however, long-term benefits to the community are anticipated due to potential employment opportunities and increased demand for local services. Therefore, no further environmental justice analysis appears warranted.

E. SECONDARY and CUMULATIVE IMPACTS

In the study area, there are several major projects in the planning stages that could potentially have additional environmental impacts. The projects include the potential eastward expansion of Craney Island proposed for a new marine terminal. In addition, the third crossing of Hampton Roads is proposed for the area. Also, the 50' Inbound Norfolk Harbor channel deepening project is scheduled to be dredged this year.

The Corps of Engineers is studying a proposal to expand Craney Island to that may incorporate a new marine container terminal facility. The proposed project would result in the filling of approximately 600 acres of subaqueous Elizabeth River bottom with an average depth of 12 feet. If the facility is built, the estimated completion date is about 15 to 20 years from now. Impacts to the 600 acres of river bottom would be mitigated. An Environmental Impact Statement is being completed for the proposed project.

The third harbor crossing project would result in approximately 120 acres of benthic impact from tunnel island and tunnel construction, although 80 acres of that total would simply be a habitat conversion from soft sediments to habitat created by armor stone. A total of approximately 12 acres of tidal and non-tidal wetlands will be filled for the project's road network. Impacts to all aquatic resources would be mitigated. An Environmental Impact Statement for the project was completed in March of 2001. The CI Expansion project and Third Harbor Crossing project are in the preliminary planning stages. There are no definite locations or permit decisions as to whether these facilities will be constructed.

The proposed 50-Foot Inbound Norfolk Harbor channel dredging project will involve deepening the existing navigation channel from 45 to 50 feet over the full channel widths of 1,250 feet within the Norfolk Harbor Reach and 800 feet within the Craney Island Reach. The upstream limit of the 50-foot inbound channel is at Lamberts Point. Approximately 2 million cubic yards of material will be dredged by hydraulic dredging equipment and deposited into Craney Island. There will be no loss of subaqueous habitat. There were no unresolved issues or concerns raised during NEPA coordination.

The City of Portsmouth has developed and adopted comprehensive zoning plans. Induced development pressures are regulated under their zoning and land use plans. Operation of the proposed container terminal is not anticipated to have a significant adverse affect on population growth or associated residential development, as most jobs that would be created at the port terminal, or at other businesses indirectly benefiting from the proposed action, are expected to be filled by workers already living in the region. A beneficial effect on commercial and industrial development, however, is anticipated, as new businesses or expanded businesses that would serve the Port terminal are likely to be located at existing facilities or on redeveloped sites. This development would benefit the region in the short-term through the generation of construction jobs related to new construction or facility renovation work. In the long-term, the region will benefit from increased employment, the purchase of goods and services, and the tax revenues generated by this development.

It is possible that increased development in the area surrounding the project will occur as the increase in employees and vehicles in the area may create a demand for more services, such as restaurants and gasoline stations, in the immediate vicinity of the project. Construction of such support businesses could impact natural resources in the area. Additionally, according to an economic study performed on behalf of the project, the construction of the port facility may result in the construction of an additional 30 distribution centers in the Hampton Roads area over the course of 15 years following the construction of the container terminal. The addition of these new distribution centers will provide significant employment boosts, but the construction of these distribution centers may also have an impact on natural resources such as wetlands if such resources are located within the footprint of the distribution center building areas.

Except as previously discussed in the transportation section of this Environmental Assessment, no additional road improvements related to the project are foreseen. The construction and operation of the marine container terminal will have the effect of increasing traffic in the immediate vicinity of the project site. However, because of the road and rail improvements proposed, there is not expected to be an overall cumulative impact related to truck traffic. With respect to rail traffic, the overall increase in train traffic is quite small. The existing rail line presently has an average of two trains per day. Once the APM Terminals project is constructed, the amount of trains will increase by an average of two trains per day, for a total of four trains on average per day. By 2016, the number of trains is expected to increase again by two, but this will still mean only on average of six trains per day will travel along the 17-mile Commonwealth Railway corridor.

Due to the use of larger Post-Panamax and Suezmax vessels, the number of ships calling Hampton Roads will remain the same. Thus, there is expected to be no cumulative negative effect on shipping traffic and navigation in the Elizabeth River area as a result of this project.

The project is also not expected to have any indirect impacts to nearby river systems, such as the James or the Nansemond due to increased turbidity. The turbidity modeling performed for the dredging shows that by the time any suspended dredged materials reach those nearby rivers, the levels of suspended sediments are lower than the existing background levels of suspended sediments in the potentially affected waterbodies.

Overall, the cumulative and secondary adverse effects of the proposal are expected to be minimal.

F. MITIGATION

Impacts to non-tidal forested wetlands are necessary to accommodate the infrastructure required to support of project's overall purpose and need. These impacts represent the least damaging practicable alternative and are proposed to be fully mitigated. The compensatory mitigation plan proposes the onsite creation of approximately 13.76 acres of forested wetlands and 14.66 acres of tidal wetlands (See Figure 7-1). Alternatively, APM Terminals may make a $759,000 in-lieu fee payment into a trust fund for the 6.88 acres of non-tidal forested wetland impacts at a 2:1 ratio that would be used within the Elizabeth River watershed for forested wetland creation. This dollar amount is commensurate with the existing Virginia Wetlands Trust Fund valuation of 55,200/acre.

Impacts to tidal wetlands and mudflat will be mitigated on-site. The proposed creation of 14.66 acres of salt marsh is based on a 1:1 creation ratio for 6.95 acres of tidal marsh impact and a 0.76:1 creation ratio for 10.1 acres of tidal mudflat impact. When comparing the cumulative value between pre and post development conditions, the mitigation will provide a higher level of functionality than the predevelopment condition, specifically in the functional areas of production, habitat, flood control, and water quality. The areal extent of mitigation required for the mudflat impacts was derived from the function-specific credit calculation method outlined by VMRC (1998). The evaluation considered five general values: production/detritus availability, waterfowl/wildlife habitat utilization, erosion buffer, flood buffer, and water quality control.

Impacts to 189 acres of benthos may also be necessary as a result of the dredging of berthing area and access channels. Sampling in the vicinity of the project area has shown the benthos to meet restoration goals set in the Chesapeake Bay Program (CBP 1994) and, therefore, mitigation is appropriate to compensate for impacts to benthic habitat from the dredging. Since it is problematic to compensate in-kind for subaqueous impacts, the Habitat Equivelancy Analysis (HEA) may be used to scale mitigation requirements. HEA is a widely accepted method of quantifying injury by scaling a restoration project to compensate for the ecosystem services forgone. This is accomplished by estimating the loss in production at an appropriate trophic level, because provision of ecosystem services typically relates closely to production. A HEA is also being undertaken for the Craney Island Expansion project with potential for 600 acres of not only lost bottom but water column impacts as well. Compensation for the loss of benthic habitat and its marine invertebrate production might best be achieved by oyster reef construction and seeding. A HEA analysis is currently being undertaken to help determine necessary compensation for the potential dredging impacts. Compensation will likely be on the order of a $225,000 in-lieu fee contribution for the habitat conversion associated with dredging. In addition, APM Terminals has affirmatively worked through the legislative process to earmark $325,000.00 to be used solely in the Elizabeth River that would otherwise have been unavailable for sole mitigation in the Elizabeth River. Therefore, impacts from habitat conversion associated with dredging will be mitigated by a total in-lieu fee contribution of approximately $550,000.

The combined in-lieu fee contribution totals $984,552.

Mitigation for dredging impacts will also be provided by enhancements in water quality resulting from the proposed project. Careful project design, elimination of uncontrolled agricultural runoff, enhanced storm water management; the removal of polluted sediments from the river bottom, and onsite wetland creation will all serve to mitigate impacts associated with project development. These measures should result in improved water quality thereby contributing to the overall recovery of the health of the river and its benthic community.

ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED

There are approximately 23.98 acres of impact to tidal wetlands, non-tidal wetlands, and mudflats associated with this project. The wetland impact total consists of approximately 6.88 acres of forested non-tidal wetlands, 6.95 acres of tidal vegetated wetlands, and 10.15 acres of tidal nonvegetated wetlands. Approximately 189 acres of subaqueous bottom will be dredged and 2 acres filled.

Impacts are necessary to accommodate the infrastructure required to support of project's overall purpose and need. These impacts represent the least damaging practicable alternative and are proposed to be mitigated onsite consistent with existing requirements to explore onsite opportunities for compensatory mitigation. The compensatory mitigation plan proposes onsite creation to mitigate all these impacts.

THE RELATIONSHIP BETWEEN SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUTIVITY

The land area to be occupied by the terminal facilities may remain undeveloped, open agricultural land with aesthetic value and provide some short-term contribution toward ecosystem balance as its primary use. With the growth of the Hampton Roads area, additional land would be required to support urban, industrial, and infrastructure development. As a result, the long-term productivity of this land lies in its use for such developments. The long-term economic productivity derivable from these developments outweighs the short-term uses.

Biotic communities may use wetlands, mudflats, and shallow water areas on and adjacent to the project site at various stages of individual life cycles. Impacts to these resources will be mitigated through direct functional replacement onsite and the removal of toxic sediments within the Elizabeth River.

Construction activities will provide short-term economic benefits to the construction trades in the Hampton Roads area. Port operations have an important long-term benefit for jobs, wages, business revenue and local taxes. The proposed work will provide continued employment for APM Terminals employees and new jobs for people in the area. It will allow APM Terminals to continue to service their Hampton Roads customers and Midwest customers at better service levels and a more competitive cost. On balance, the development of the proposed marine terminal facility will enhance long-term economic productivity with minimal adverse impact to short-term uses of the environment.

ANY IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSAL SHOULD IT BE IMPLEMENTED

This section discusses those natural and economic resources that would be permanently committed as a result of the proposed project. Because these resources would be expended in a way that could not be recovered once committed, their loss of availability for other uses unrelated to the project would be irreversible.

There are approximately 23.98 acres of impact to tidal wetlands, non-tidal wetlands, and mudflats associated with this project. The wetland impact total consists of approximately 6.88 acres of forested non-tidal wetlands, 6.95 acres of tidal vegetated wetlands, 10.15 acres of tidal nonvegetated wetlands, and 2.07 acres of open water fill. In addition, approximately 2.37 acres of existing upland will be converted into submerged land.

Approximately 300 acres of the site will be converted from existing agricultural open space to developed area. Once constructed, terminal yard will be used to store containers. As such, it will cease to function as a natural open space. Considering zoning designations; however, the proposed land use is consistent with other development activity within the Elizabeth River watershed.

To achieve the proposed design depths necessary to accommodate Post-Panamax and Suezmax vessels, the dredge material management plan calls for the disposal of approximately 10.3 million cubic yards of sediment within the Craney Island Landfill. This represents a significant volume for any single project but is within the

capacity limits of the landfill. Once deposited within the landfill, the fraction proportion of available capacity consumed by this operation will be lost. A large portion of the dredged material can be used by the Corps towards construction of Craney Island's berm and dike system.

Construction of the marine container terminal at the APM Terminal site is expected to cost several hundred million dollars, which would be an irreversible and irretrievable commitment of financial resources. There will likely be an additional commitment of public financial resources once approved.

FONSI (Finding of No Significant Impact)

The District Engineer has **preliminarily** determined that the decision on the project is not a major Federal action significantly affecting the quality of the human environment. Therefore, it is anticipated that no Environmental Impact Statement will be prepared. This finding is based on information contained in this Draft Environmental Assessment of the project but is subject to revision based on comments received from Federal, State and local agencies and the general public.

FOR AND IN BEHALF OF THE DISTRICT ENGINEER, COL. David L. Hansen:

_____ _____

Date J. Robert Hume III
Chief, Regulatory Branch